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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/693,377	10/20/2000	Masafumi Usuda	3815/105	8613

22913 7590 03/03/2006

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EXAMINER

TSEGAYE, SABA

ART UNIT PAPER NUMBER

2662

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/693,377	USUDA ET AL.	
	Examiner	Art Unit	
	Saba Tsegaye	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed on 02/10/06. Claims 12-23 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 103

2. Claims 12, 15-17 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby et al. (US 6,285,655 B1) in view of Asano et al. (US RE37, 420 E).

Regarding claims 12 and 16, Lundby discloses a transmission method in a base station (112) for use in a CDMA mobile communication system for transmitting a signal of each of a plurality of channels (212a-212n) included in each of a plurality of channel groups (240a-240k). Fig. 3 shows orthogonal codes ($W_1 \dots W_n$) for use in spreading signals of respective channels (212a-212n) in each channel group differ from each other ($W_1 \dots W_n$ (222)) and channels of each channel group (240a-240k; **designated for a particularized transmission**) include a pilot channel (232a-232k), the pilot channel is spread using an orthogonal code (PW_1) and a spreading code (column 8, lines 20-27). Further, Lundby discloses that switch 230 directs the data from traffic channel 212 to the proper summer 240. Summers 240 sum the signals from all traffic channels 212 and a pilot channel 232 designated for a particularized transmission (groups). A pilot signal is transmitted with each particularized (group) transmission. The resultant signal from each summer is provided modulator and transmitter 114. Lundby does not expressly disclose wherein spreading codes for use in spreading signals of respective channel groups differ from each other.

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Asano teaches, in Figs 1 and 2, orthogonal codes $[W_1(t) - W_m(t)]$ for use in spreading signals of respective channels $[1-m]$ (first group); $(m+1) - (2m)$ (second group)] in each channel group differ from each other and spreading codes $[PN(t); \text{ and } PN(t-\phi)]$ for use in spreading signals of respective channel groups $[(1-m); \text{ and } (m+1)-(2m)]$ differ from each other (column 5, lines 3-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings from Asano of using different spreading codes to respective channel groups to the summer disclosed by Lundby. One of ordinary skill in the art would have been motivated to do this because using different spreading codes to respective channel groups would increase the capacity of subscribers within a range in which the necessary quality can be maintained.

Regarding claims 15, 21 and 22, Lundby in view of Asano discloses all the claim limitations as stated above. Further, Lundby discloses that channel element 112 comprises at least one pilot channel 232 wherein channel element 112 consists of a plurality of groups. The number of pilot channels 232 required is dependent on the system requirements (claimed transmits a signal of a pilot channel only in one of the channel groups). Fig. 4 shows a demodulator 136 within a remote station. Within demodulator 136, the data is provided to despreader 320 (column 7, line 45-column 8, line 67). As pointed out above the channel element 112 can transmit a pilot channel only in one of the channel groups (claimed measuring interference power of channel other than a pilot channel by despread the received signals by

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using a orthogonal code and a spreading code for use in spreading a signal of the pilot channel of the channel group).

Regarding claim 17, Lundby discloses a CDMA mobile communication system comprising the base station as claimed in claim 16 (column 5, lines 39-42).

Regarding claim 23, Lundby discloses the mobile station wherein the means for measuring interference power measures the interference power by using a symbol period of the pilot channel (column 6, lines 48-56).

3. Claims 13, 14, 18, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby et al. in view of Asano et al. as applied to claim 12 above, and further in view of Shockey (US 6,094,450).

Regarding claims 13, 14, 18 and 19, Lundby in view of Asano discloses all the claim limitations as stated above except for transmitting a signal of the pilot channel with a symbol rate higher than a minimum symbol rate and wherein the symbol rate higher than the minimum symbol rate is determined in accordance with a relationship between transmission power of each channel and channel capacity.

Shockey teaches that a pilot PN sequence generator is controlled by PN clock, which operates at higher frequency than the data bit rate from the data source and the symbol rate higher than the minimum symbol rate is determined in accordance with a relationship between transmission power of each channel and channel capacity (column 6, line 57-column 7 line 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings from Shockey of transmitting a signal of the pilot channel with a symbol rate higher than a minimum symbol rate to the transmitting system of Lundby in view of Asano. One of ordinary skill in the art would have been motivated to do this because transmitting a signal of the pilot channel with a symbol rate higher than a minimum symbol rate assures the pilot and symbol sequence epochs remain aligned (column 7 lines 1-5).

Regarding claim 20, Lundby discloses a CDMA mobile communication system comprising the base station as claimed in claim 18 (column 5, lines 39-42).

Response to Arguments

Applicant's arguments with respect to claims 12-23 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues (Remarks, page 10) that Lundby does not disclose that the transmitted signals are not spread by orthogonal codes for implementing channel division and spreading codes (scrambling codes) for implementing cell division. Examiner respectfully disagrees. Lundby clearly discloses that multiplier 222 covers the data with the Walsh sequence (orthogonal codes (for channel division) and switch 230 directs the scaled data from traffic channel 212 and each modulator and transmitter 114 spreads the summed signals by short PN (cell division). Further, Applicant argues that Lundby does not disclose that each of summer 240 includes a plurality of channel groups. Accordingly, Lundby does not disclose that the pilot channel is located for each channel groups. Examiner respectfully disagrees with Applicant assertion. Lundby discloses, in Fig. 3, that switch 230 *directs the scaled data from traffic*

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channel 212 to the proper **summers 240, which** sum the signals from all traffic channels 212 and a pilot channel 232 **designated for a particularized transmission.**

Page 11, Applicant argues that Asano does not disclose that teach of the channel group divided by the spreading codes has the pilot channel. It is respectfully submitted that the rejection is based on the combined teaching of the Lundby and Asano references and that the Lundby reference, as pointed out above does teach this feature.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
February 27, 2006


JOHN PEZZLO
PRIMARY EXAMINER